EXAMINER HANDBOOK

ON THE USE OF THE

U.S. PATENT CLASSIFICATION SYSTEM

Classification Operations, Search and Information Resources Administration

Revision Date 2/99

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INTRODUCTION

Detailed, authoritative guidelines set forth for the creation, development, and administration of the U.S. Patent Classification (USPC) system are contained in the document entitled "*Development and Use of Patent Classification Systems* (DUPACS)," published in January 1966. Refer to DUPACS for more comprehensive information about the general practices and procedures outlined herein.

The USPC system provides for the storage and retrieval of every patent document that a patent examiner needs to review when examining patent applications. Therefore, in the aggregate, the system must be exhaustive of all patentable subject matter under patent laws. Although the system is primarily designed to assist patent examiners performing patentability searches, the system is used by a wide variety of other users, e.g., patent attorneys and agents, people involved in research and development, and the patrons of the Patent and Trademark Depository Library (PTDL) system.

The present USPC system reflects the uneven growth derived from the first general scheme created in 1900. Classification before 1900 closely paralleled economic groupings of the period with informal and arbitrary subdivisions to provide manageable size collections. Relationships among such patent collections, if they existed, were lost in the alphabetical ordering of titles assigned to each of the collections. Search notes, class and subclass definitions, or schedule explanations either did not exist or, at most, were primitive.

While all of the present major groupings have been "revised" since 1900, each class reflects the theories of classification that existed at the time it was reclassified. The guidelines set forth below are generally applicable only for classes revised since 1940. The location of the "miscellaneous" subclass (if a class includes such a subclass) is an indicator of the age of any class. For example, if this subclass is placed in any location other than as the last subclass in the schedule, it can be assumed that the class was reclassified before 1940. For further information on the original distribution date of any class, refer to the *Manual of Classification*, pages CP-1 et seq.

This handbook is intended for use by U.S. patent examiners. There are two other condensed handbook versions of DUPACS They are entitled "*Handbook on Use of the USPC System*" and "*Handbook on Use of the USPC System for Patent and Trademark Depository Libraries*" and are available for other users. This handbook is based on and draws heavily from the "*Guide to the U.S. Patent Classification Systems*," issued in June 1973. We are indebted to its author and authors of earlier publications on patent classification for much of the useful information that has been reproduced in this handbook.

The authors wish to thank the many people who read and commented on this handbook. Their comments were integrated into this publication. It is hoped that this handbook will provide system users with a clearer understanding of the system, its use, and its administration.

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I. ORGANIZATION OF INFORMATION

A. Bases of Classification

A variety of rationales have been developed over the years to subdivide our classification files into searchable units. Collections of art based on each of the following rationales can be found in the system as it exists today. Thus, keep in mind the strengths and weaknesses of each rationale when conducting a search.

1. Industry or Use

This approach divides art on the basis of the industry employing the art or the use to which a device is put. It provides a unique collection wherein all relevant devices for a given technology are housed in one convenient location. Several original classes were created using this rationale and a number of these classes still exist today, e.g., Bee Culture, Butchering, etc.

A drawback of classifying in the above manner is that physically similar art is separated without a meaningful distinction. Thus, the search process is lengthened. If the above classification process is used excessively, there is a greater chance of issuing two patents for the same idea. To illustrate, the 1872 classification system separated cooling devices on the basis of the product treated in these devices; e.g., beer or milk. These cooling devices could well be analogous and both should be considered in performing any search for cooling devices, per se.

2. Proximate Function

To avoid fragmenting the art based on its industry or use, the U.S. Patent and Trademark Office uses the fundamental, direct, or necessary function as the principal basis of classification. Also, for brevity, the term "proximate" is substituted for the words fundamental, direct, or necessary. Therefore, "proximate" function means that similar processes or structures that achieve similar results by the application of similar natural laws to similar substances are considered to have the same fundamental utility and are grouped together. Our current system provides a single collecting area for all heat exchange devices; e.g., milk coolers, beer coolers, etc. Once collected into this single area, the art is further subdivided on features essential to heat exchange devices.

The term "utility" refers to (1) the function that a process, structure, or composition can perform; (2) the effect of a process, structure, or composition; or (3) the product that is produced by a process, structure, or composition. The proximate function, when used as a basis for classification, is generally applied to a process, structure, or composition for performing general operations in which a single causative

characteristic can be identified and which requires essentially a single unitary act; e.g., agitating, cutting, heating, filtering, etc.

3. Effect or Product

This rationale collects art into industrial or trade groupings based on the result produced by the art. This result may be tangible (e.g., the product of a manufacturing process) or intangible (e.g., the communication of sound at a distance). In the mechanical and electrical fields, this method of grouping is generally reserved for complex processes or structures requiring successive manipulations involving plural acts; e.g., telephone system, shoemaking machine, etc. In the chemical fields, processes involving chemical reactions often are classified on the basis of the product produced.

4. Structure

Simple subject matter having no apparent functional characteristics is classified based on the structural configuration or physical makeup of the object. This situation rarely arises with respect to the creation of a large group or class in mechanical fields, but frequently occurs with respect to subdivisions within such group or class.

A chemical compound is always classified on the basis of structure, and a stock material is often classified on the basis of structure. The chemical structure of compounds and the components and arrangement of the components of a stock material determine their classification, irrespective of the utility or utilities involved. Since the properties of mixtures, or compositions, are not predictable to the same degree as are the properties of chemical compounds, utility is usually the primary basis for classification of mixtures. In the case of certain mixtures, however, such as colloids and alloys, the best classification seems to be on the basis of the components per se.

B. Search System Organization

The following description is a brief overview of the USPC system. This description will acquaint you with terms and phrases used in the handbook. Many of these terms and phrases are explained in greater detail later in this handbook.

A fundamental principle of the USPC system is that each class, or part thereof, was created by:

(1) analyzing the claimed disclosure of the U.S. patents,
(2) creating various divisions and subdivisions on the basis of that analysis rather than by making a theoretical arrangement or ordering, and, finally,
(3) placing the patents into the arrangement.

In the USPC system, similar subject matter has been gathered in large groupings to create classes. Each class was then subdivided into smaller searchable units called subclasses. The sequence or pattern arrangement of the subclasses within each class is indicated by the Class Schedule.

Each class and its subclasses, with the exception

of the design classes and alpha subclassesof the utility classes, have a title and a definition. The title and definition of any subclass in a class schedule are further restricted (a) by the title and definition of the class and (b) by the title and definition of any subclass or subclasses under which they are indented (see the*Manual of Classification*, page I-1).

The bulk of patent documents stored in the USPC system are U.S. patents. These documents are designated as either "OR" (Original) or "XR" (Cross-Reference) placements.

The OR classification is based on the claims in the patent. It is the primary classification assigned to any patent. Also, patents designated as Originals are used, in conjunction with the definitions, to define the content of a subclass as well as to determine where newly filed applications are best assigned for examination.

A Cross-Reference placement is an additional copy of an "Original" patent that has been added to a different subclass in the system. Refer to Sections V and VI in this handbook for more information on this subject.

The USPC system also contains many foreign patents and pieces of non-patent literature The procedure for classifying foreign patents and non-patent literature in the system is simpler than the procedure for classifying U.S. patent documents. Total disclosure is generally used in classifying foreign patents and non-patent literature.

Until October 1, 1995, the Patent and Trademark Office received copies of foreign patent documents from other countries and classified them into the USPC system. Beginning in October 1995, however, newly published foreign patent documents were no longer classified into the USPC system. PTO now receives all foreign patents on CD-ROM disks. These foreign patents on CD-ROM are accessible from the Foreign Patents Branch of the Scientific and Technical Information Center, through the Foreign Patents Access System (FPAS).

Also, after October 1, 1995, copies of foreign documents in the examiner files were no longer automatically reclassified during a USPC reclassification project. In some cases, the foreign documents associated with a reclassification project remain in the old US classifications, which are renamed "Foreign Patent Art Collections." These collections appear at the end of the class that includes the newly created U.S. classification schedule. The Foreign Patent Art Collection is identified by reference to the subclass portion of the main schedule to which it pertains. Its subclasses are characterized by the prefix "FOR," followed by a 3-digit number.

Each subclass title in the Foreign Patent Art Collection contains, in parentheses at the end of the title, the subclass number under which the foreign patents were classified before the reclassification project.

Subclass definitions are maintained for the Foreign Patent Art Collections that exactly correspond to those of the former classification schedule.

Some foreign patents continue to be filed in the examiner search files by IPC class. See attachment B to Section IV of the *Manual of Classification* for a listing.

Specific search tools are used to access information contained in the system. The following discussion provides detailed information on these tools and how to use them.

II. AIDS TO SEARCHING OR PLACEMENT

The procedures used to make an accurate and efficient search or to classify a patent document require familiarity with and use of the following search tools:

- *Index to the U.S. Patent Classification System*
- *Manual of Classification*
- *Classification Definitions*
- Classification Orders
- Automated Patent System (APS)

A. Index to the U.S. Patent Classification System

The *Index to the U.S. Patent Classification System* comprises an alphabetical listing of technical and common terms representative of arts, processes, machines, manufactures, compositions of matter, etc., along with a numerical reference citation to a class or subclass in which pertinent patents or literature (prior art) can be found. The Index may be used to find clues to the classification of specific subject matter. The reference citations obtained by using the Index are not exhaustive and only serve as a guide to the schedules, or portions thereof, of the identified classes. The definitions and notes (see Subsection C below) associated with these classes or subclasses must be reviewed for more precise information on the location of relevant art. This is true even though the reference citation given by the Index appears to state a restricted area of subject matter. Also, synonyms can be used to locate an entry in the Index.

B. Manual of Classification

The *Manual of Classification* is comprised of:

(1) A listing of current pages of the Manual showing, among other things, the date each Class was established,
(2) An "Overview of the Classification System,"
(3) A theoretical organization of all the Classes into three major groups and, within each group, an attempt to list the Classes in a hierarchy,
(4) Group Personnel Directory,
(5) Classes arranged by Art Unit,
(6) Classes arranged numerically with Art Unit and Search Room locations,
(7) Classes arranged in alphabetical order,
(8) Class schedules — that is, an arrangement of the subclass titles and numbers in an organized order under each Class title.

The *Manual of Classification* is available in printed form and in electronic format on PTONet

Class and subclass titles are used to identify major and minor segments of the classification system, respectively. These brief titles are as suggestive as possible about the subject matter

covered by each segment. Therefore, it is best not to depend on class and subclass titles alone to delineate the subject matter in a class or subclass. Reference to respective definitions and notes is essential. If a search or placement is to be expeditious, accurate, and complete, the *Manual of Classification* should be used only as a *key* to the class or subclass definition and appended notes.

C. Classification Definitions

The *Classification Definitions* comprise detailed descriptions of the art found in the classes of the Classification system of the USPTO. Used in conjunction with the *Manual of Classification*, Definitions establish placement of each Original and each mandatory Cross-Reference of a U.S. patent. Also, they assist the assignment of each patent application within USPTO.

The review of class and subclass definitions is essential to properly place a document in the USPC system or to obtain a proper field of search therefrom. Each definition consists of a statement of the scope embraced by the respective segment of the system that it delineates.

A subclass definition must be read in light of the class definition and any parent subclass definitions from which it depends. Many of the definitions have accompanying notes These notes are usually (1) notes that supplement definitions by explaining terms or giving examples and (2) notes that refer to related disclosures located in other classes or subclasses.

The latter notes are termed "Search Notes" and help to qualify and explain the limits of a class or subclass. They generally state the relationship to, and difference from, other identified subject matter collections. For any search or patent placement, each note provided should guide a user to the extent necessary to reach a decision either to include or exclude an area containing relevant subject matter. Search Notes found in the class definition, as well as in the definition of any parent subclasses from which a subclass depends, should also be used as a guide in reaching this decision.

The definitions and notes of each revised class, published in separate Classification Orders, are identified by the class number and title. Class and subclass definitions are available in electronic format, on PTONet. Individual Classification Orders are available in printed form from the Editorial Division of the Office of Classification Support.

D. Classification Orders

At the end of a reclassification project, a Classification Order is issued. Classification Orders are issued throughout the year. The Classification Order is a report on the changes to the USPC system brought about as the result of a reclassification project. It also serves to bridge the gap between the date of the Order and the time that the regular paper and electronic search tools are updated to reflect the reclassification. The date of the Classification Order is also the "Issue Date" of the reclassification project.

The following search tools are updated by a Classification Order:

(1) *Manual of Classification*. Changes to all affected parts of the Manual. This includes any new class schedules or changes to existing class schedules impacted by the project.

(2) *Classification Definitions*. Changes to the Definitions necessary to support the changes caused by the reclassification project.

(3) *Source and Disposition Pages*. Lists how art from abolished subclasses has been placed into newly established or existing subclasses.

(4) *International Patent Classification (IPC) Concordance*. Shows the relationship between newly established subclasses and their IPC counterparts.

(5) *Foreign Patent Art Collections*. Listings created to provide for foreign patents that were not reclassified as part of the project appear at the end of the Class containing the new schedule. Foreign Art Collections are identified by the prefix "FOR" followed by a 3-digit number. See "Search System Organization," above, for a more detailed explanation of this practice.

A "Reclass Alert Report," issued quarterly, summarizes changes resulting from Reclassification Orders and notifies examiners of issued reclassification projects. (For a copy of a Classification Order, contact your Group Post Classifier.)

See below for a discussion on how to use the Automated Patent System (APS) to find the locations of new classes and subclasses of art that were classified in an abolished subclass.

E. Automated Patent System (APS)

The APS can be used to access the on-line database that contains the full text files for all of the U.S. patents issued since 1971. Pertinent classifications for a particular subject matter can be determined by conducting a term search of the full text file (or portions thereof, such as titles or abstracts) and then using the SELECT command to display and rank the classifications of the resulting patents.

The APS can also be used to determine the new location of art classified in a subclass that was abolished in a reclassification project. By searching in one of the Issue Classification Indexes (e.g., /ICLS, /IOR, etc.) for the abolished subclass, the new class and subclass location can then be determined by using the SELECT command.

See the APS *Text Search and Retrieval Reference Manual* for a detailed discussion of related APS commands and indexes.

APS requires that all patents have at least one valid classification. Class 1, subclass 1 is a holding place for patents having no valid classification data—neither OR nor XR. Invalid classifications result for two reasons: (1) the classification may become invalid when a project becomes official and all the old classifications

are abolished; (2) the issue classification — that is, the "Blue Slip" classification — may be invalid. These discrepancies are routinely corrected.

III. PATENT ANALYSIS FOR PLACEMENTINTO SYSTEM (CLAIMED DISCLOSURE)

As previously mentioned, U.S. patents constitute the bulk of documents in the U. S. Patent Classification System. Therefore, class schedules are created and developed by considering the informational content of the U.S. patents in the area of technology that a class is intended to serve.

However, the disclosure of a patent is usually multifaceted, and such disclosure is susceptible to varied analyses. To ensure reasonable and uniform placement of patents and to provide for "Infringement" type searches, the claimed subject matter interpreted in light of the total disclosure contained in a patent has been selected as the primary basis upon which the informational content of the patent is considered. This narrows down to manageable proportions the subjective judgments that must be made relative to the uniform placement of patents.

Inasmuch as the total disclosureof a patent may include unclaimed subject matter of value, adequate provision is made for including unclaimed subject matter in the system by cross referencing (see Section VI, below). It must be emphasized that not every item of information included in every patent can or should be provided for. Generally, only unclaimed subject matter characterized as (1) new, (2) uniquely set forth to facilitate recognition, (3) particularly illustrative of significant details or relationships, or (4) providing helpful background or explanatory material, is considered to warrant the placement of additional copies in appropriate subclasses for such subject matter.

This being said, the first step in the process for determining (a) the proper assignment of an application for examination, (b) a proper field of search, or (c) the required or "mandatory" classification(s) for an issuing application is to determine precisely what is being claimed.

Each claim in an application or patent must be reviewed to determine which elements or subcombinations are embraced by that claim. Dependent claims frequently add additional subcombinations or elements to the organization claimed in its parent or independent claim. These additional subcombinations or elements could well affect the field of search and application assignment or classification upon issue.

IV. DETERMINATION OF A CLASS FOR ORIGINAL CLASSIFICATION OR ASSIGNMENT FOR EXAMINATION

When the content of each claim has been analyzed, it may be found that the patent or application includes two or more claims that are drawn to diverse subject matter (i.e., they are classifiable in different classes).

For search and retrieval purposes, merely placing the document in each class would suffice. However, for both administrative and legal purposes within the USPTO (e.g., ensuring the examination of patent applications by the best qualified examiner on the subject matter, restricting patent applications to properly related inventions, interference or infringement searches, etc.), there is a need to designate for U.S. patents a primary, or Original, classification. All other classifications are designated as cross-references, and the corresponding patent documents are so labeled or stamped at the top of the cover page. The following selections relate to the basis on which the "original" class is chosen or how applications having multiple claimed inventions are assigned.

A. *Original Placement Between Classes*

The process for selecting the claimed invention that will control original classification or assignment designation is effected by considering in turn the factors listed below:

- Selection of the most comprehensive claim
- Selection among categories of subject matter when claims are of *equal* comprehensiveness, or when the most comprehensive claimcannot be determined;
- Selection among superiority of types of subject matter;
- Selection among generic classes and species classes thereunder; and
- Selection among classes in "related subject" listing.

1. Selection of the Most Comprehensive Claim

The claimed disclosure setting forth the most comprehensive organization (for example, a claim to a combination as compared to a claim to a subcombination or element of that combination) will control placement of a patent or application among classes. This is illustrated by comparing the following two claims (which not only differ in comprehensiveness, but also are directed to different categories of subject matter) each of which define subject matter properly classified in a different class:

Claim 1

A laminated sheet comprising two panels of aluminum bonded with an intermediate layer of a binder, said binder comprising an elastic, self-vulcanizing rubber-like cement, the adjacent faces of the panels being roughened in a cross-hatched pattern to facilitate adhesion of the cement, two opposite edges of the sheet being notched with corresponding, interfitting dovetail cutout portions to facilitate securing the edges one to the other.

Claim 2

A process comprising scoring the faces of two aluminum panels in a cross-hatched pattern, applying a binder to the scored faces, pressing the coated faces together to secure the panels and forming a sandwich and then bending the sandwich and securing the opposite edges to each other to form a tube.

Explanation

Claim 1 encompasses a product comprising a laminated sheet. Claim 2 encompasses a process of making such a sheet, but includes the additional steps of bending the sheet and securing the edges to form a tube. Process Claim 2 thus contains a greater extent of subject matter than does Claim 1 and is therefore more comprehensive. Assuming that separate classes provided for the subject matter in Claim 1 and 2, respectively, a patent with these two claims should be placed as an original in the class providing for the subject matter of Claim 2.

Please note that mere details of a subcombination, as a rule, do not generally increase the comprehensiveness of a claim. Thus, Claim 1 above would not become more comprehensive than Claim 2 if Claim 1 were amended merely to recite the details of the nature of the binder composition.

2. Selection Among Categories of Subject Matter

When a patent includes separate claims to two or more different categories of subject matter and none of the claims is more comprehensive than the other(s) or if greater comprehensiveness cannot be determined, the Original is placed in the class providing for the claimed category that appears highest in the following list:

(1) Process (of using product 2, e.g., using a fuel or radio transmitter)

(2) Product (of manufacture, e.g., a fuel or radio transmitter)

(3) Process (of making product 2)

(4) Apparatus (to perform 3 or to make 2, e.g., machine, tool, etc.)

(5) Materials (used in 3 to make 2)

For example, when considering claims to a radio transmitter (category 2) and to a process of manufacturing the same (category 3), the claim to the transmitter would control class assignment. Similarly, a claim to a process of using the transmitter (category 1) would control over a claim to the transmitter or process of making it.

Modern patent classification schedules often separate categories of related subject matter into different classes or, if several categories are included in the same class, put them in different groups of subclasses. In the latter case, the priority given above is frequently used to determine order of subclass groupings. For situations where all claims are provided for in the same class, see Section V, B, below, to determine placement in the proper subclass.

3. Selection Among Superiority of Types of Subject Matter

When placement of the Original cannot be determined from considerations of (a) comprehensiveness or (b) categories of subject matter, placement is next determined by considering the highest category below that provides for claimed subject matter.

(1) Relating to maintenance or preservation of life

(2) Chemical subject matter

(3) Electrical subject matter

(4) Mechanical subject matter

- (a) Dynamic (relates to moving things or combinations of relatively moving parts)
- (b) Static (stationary things or parts nonmoveably related)

4. Selection Among Generic Classes and Species Classes Thereunder

When placement of the Original cannot be determined from (a) comprehensiveness, (b) categories of subject matter, or (c) types of subject matter, placement is next determined by considering whether the claims fall into classes having a genus-species relationship to each other. An example of such a situation is as follows: Class 427 is regarded as the generic coating class, while Classes 204, 205, and 148 provide for specific types of coating and are regarded (at least in part) as species coating classes.

5. Selection Among Classes in "Related Subject" Listing (Last Resort Only)

The number of a class generally has *no* significance insofar as superiority of one class relative to another. The class number is merely an arbitrary mark of identification. Nor is the class listing in the "Classes Arranged in Alphabetical Order" in *the Manual of Classification* an order of superiority. The title of a class is an accident of language and varies from one language to another.

However, a theoretical organization of the applied sciences into three major areas is published in the front of the *Manual of Classification*, Section I, titled "Patent Office

Classes Arranged by Related Subjects." Within each of the areas the classes have been listed in a hierarchy suggesting an order of superiority.

The USPC system provides for the storage and retrieval of every patent document that a patent examiner needs to review when examining patent applications. Therefore, in the aggregate, the system must be exhaustive of all patentable subject matter under patent laws. Although the system is primarily designed to assist patent examiners performing patentability searches, the system is used by a wide variety of other users — e.g., patent attorneys and agents, people involved in research and development, and the patrons of the Patent and Trademark Depository Library (PTDL) system.

Some class positions in the listing show superiority very well, whereas others show it less or not at all. Notwithstanding, *as a last resort*, where the other bases for selection discussed above cannot be applied, a controlling claim is sometimes selected according to this listing. The controlling claim is identified as the one having subject matter provided for by the class that appears highest in such listings.

6. Exceptions

(a) Where *special agreements* between Groups are in effect, such as for high-temperature superconductivity applications and for certain biotechnology areas, these agreements override all other considerations

(b) Where the *historical placement* of patents having particular claimed disclosure has been contrary to written definitions and notes, the historical placement overrides all other considerations, except the special agreements mentioned above, and controls placement of like subject matter until corrective reclassification is effected.

(c) *Classification definitions* (particularly the search notes and lines with other classes) must be read for possible exceptions to the selection procedures discussed in 1–5 above, inasmuch as disclosures in a given area of technology may have required deviation from these procedures. Any deviation will be mentioned, and explained, in a modern class definition.

The procedures outlined above presume that the person reviewing the claims knows the class in which each claimed invention is classified. The following Section offers suggestions on how to determine which classification is most appropriate for any claimed invention where the class is not known.

V. SELECTION OF LOCUS FOR SEARCHING OR PLACEMENT

The following suggestions are offered for selecting a class whenever the appropriate class for a particular claimed invention is unknown. These suggestions should be applied to *each* claimed invention.

A. Selecting a Class

1. Index to the U.S. Patent Classification System

Reference to the *Index to the U.S. Patent Classification System* by patent title, a key word of the title, a synonym thereof, or any other descriptor of the claimed disclosure should provide one or more clues to particular classes (and often subclasses) relating to the subject matter involved. Caution should be used with respect to the subclass(es) indicated under any heading (see Section V, B).

2. Patent Office Classes Arranged by Related Subject

Reference to "Patent Office Classes Arranged by Related Subjects" beginning on page I-5 of the *Manual of Classification* is often the best method of making an initial determination of the pertinent class(es).

3. Alphabetic or Numeric Listing of Classes

Reference to the alphabetical or numerical listing of class titles in the *Manual of Classification* may provide the necessary clue to the proper class.

4. Automated Patent System (APS)

A term search of the text along with using the SELECT command to display and rank the classifications of the resulting patents can help determine the proper class. See Section II, E, above for a discussion of APS features which may be useful in determining the proper classification in which to search or place a patent.

5. Subclass Titles

A quick scan of the subclass titles in a class suggested by suggestions of paragraphs 1-4 above is often very helpful in a first approximation of the pertinence of such a class to the subject matter being considered.

In every case, the definition of the indicated class must be checked to verify the propriety of the proposed class selection. This selection

requires that a class, as defined and further explained in the class notes, encompass claimed disclosure to the exclusion of other classes. Usually, the definition and notes of a class indicate other classes in which provision is made for related subject matter and also set the lines of demarcation between and among such related subject matter. It should not be necessary to squeeze or "shoehorn" a patent disclosure to make it fit a particular class definition.

6. Exceptions and Caveats

(a) Unless the definitions specify otherwise, a claim to an article of manufacture (a box for Class 229) distinguished *solely* by the composition or stock material from which it is made (a particular form of corrugated paper for Class 428) is placed in the appropriate composition or stock material class—contrary to the selection procedure set out above.

(b) A single claim to a hybrid of categories (such as a product defined only by a process for its preparation) is occasionally encountered in a patent or application. Under these circumstances, an application may be assigned to the proper process class for *purposes of examination*. If allowed, the claim should be classified in the proper product class and a cross-reference may be placed in the process class where the application was examined.

(c) Notes for the class definition of the class providing for a combination should be read for possible exception where the claimed disclosure is to a "nominal" combination. A nominal, or named, combination refers to a combination wherein one or more of the parts or steps thereof are recited so broadly, and without details, as to constitute a mere identification rather than a description of each part or step.

(d) Frequently an application is received that claims too much for placement in either an element or a subcombination class but does not claim enough subject matter to clearly meet the requirements of a combination class. In these instances, assignment is generally made to the class providing for the larger organization, i.e., the combination class, instead of assigning it down to the lesser organization, i.e., the element or subcombination class.

(e) As mentioned above, where the historical placement of patents having a particular claimed disclosure has been contrary to written definitions and notes, this overrides all other considerations and controls placement of like subject matter until such time as corrective reclassification is effected.

B. Selecting a Subclass Within a Class

After determining the most appropriate class to search or place a particular claimed invention, the next step is to determine which subclass best provides for the concept in question.

It should be noted that many claims, particularly in the chemical classes, require more than one classification.

Use the following procedures to select the subclass(es) applicable to each individual claim in a patent or application (e.g., each claim must be considered separately for classification or search purposes). A separate, mandatory classification is required for each claim that is classifiable in a different subclass. Likewise, each claim in an application should be considered separately to determine all critical search locations.

Before beginning a discussion on subclass selection, the meanings of certain terms and phrases need explanation. The following schedule is a hypothetical system to sort and classify scrap in a junk yard. It will be used to help define those terms and phrases.

1 COMBINED BAR, LINK AND BALL
2 COMBINED BAR AND LINK
3 COMBINED BAR AND BALL
4 COMBINED LINK AND BALL
5 CHAIN
21 . With end fastener
22 . With flaccid cover
23 . . Removable
6 BAR
7 LINK
8 BALL
9 . Hollow
10 . . Perforated
11 . . Grooved
12 . Perforated
13 . Grooved
14 . Mineral
15 . . Metallic
16 . . . Aluminum
17 . . . Zinc
18 . Rubber
19 . Ivory
20 MISCELLANEOUS

The above schedule is similar to an outline used to write a term paper or the like. Each indented heading (subclass) further qualifies the heading (subclass) under which it is indented and, consequently, must be read as including all of the limitations of the superior heading (subclass). For example, subclass 10 is read as a perforated hollow ball and will only accept items having at least these attributes. The qualifier "at least" is used deliberately. The reasons for this qualification are explained below.

Subclass titles that do not have a dot imposed between the title and numeric designator for the subclass are referred to as a "Main Line" or "First Line" subclass, e.g., subclasses 1, 2, 3, 4, 5, etc. Indented subclasses are referred to by their level of indentation. Subclasses indented one level below a "Main Line" subclass are referred to as "Second Line" subclasses, e.g., subclasses 21, 22, and 9, in the above example. Subclasses indented one level below a "Second Line" subclass are referred to as "Third Line" subclasses, e.g., subclasses 23, 10, and so forth. All subclasses indented under a superior concept are generally referred to as that concept's "indents."

Subclasses positioned at the same level of indentation are also called "coordinate" subclasses, provided that a superior subclass is not located between the subclasses being compared. Thus, subclasses 21 and 22 are coordinate with respect to each other. Subclasses 22 and 9 are not coordinate, even though they are both "Second Line" subclasses, since subclasses 6, 7, and 8 intervene between these two subclasses. All "First Line" subclasses are coordinate with respect to each other since nothing can be superior to a "First Line" subclass.

1. Schedule Order

The order in which a subclass appears in the schedule establishes the order of superiority among the concepts provided for in the schedule. The number assigned to a subclass title has no importance other than to provide an address for the storage area in which the art resides. The location of the subclass title within a schedule hierarchyis paramount.

In a modern schedule, subject matter is hierarchically arranged, with the subclasses embracing the largest organization of elements, i.e., the most complicated structures provided for in the class, usually appearing higher in the schedule than simpler subject matter. The above schedule example shows this type of arrangement. The organization of a bar, plus a link and a ball (i.e., subclass 1, which is the largest assemblage of elements) appears higher in the schedule than the lesser assemblages of a bar plus a link, or a bar plus a ball or a link plus a ball. The simplest elements (e.g., bars, links, and balls) are found even lower.

The modern schedule is also usually characterized by the placement of a "MISCELLANEOUS" subclass at the end of the schedule (see subclass 20 in the previous example). Also, it frequently has a "COMBINED" subclass located about midway down the schedule's length.

The "COMBINED" and "MISCELLANEOUS" subclasses are similar in character. The "COMBINED" subclass acts as a miscellaneous collecting point for the basic subject matter of the class combined with subject matter provided for in another class when such combinations are not specifically provided for higher in the schedule. The "MISCELLANEOUS" subclass collects all subject matter properly placed below "COMBINED," for which no specific subclass is provided.

See Appendix A for further discussion of the details of a modern schedule.

As noted earlier, the classification system as it exists today was created in the last 100 years. Vestiges of older systems still exist in the system and it is important to distinguish the older classes from the modern classes since the classes were created using a different theory of schedule structure and art placement. When using the older classes, adjust search and placement strategies accordingly.

In older classes, the "MISCELLANEOUS" subclass almost always appears as the first subclass in the schedule array. In this position, the "MISCELLANEOUS" subclass assumes the function of both the "COMBINED" subclass and the "MISCELLANEOUS" subclass in the modern schedule. It provides a home for all unprovided for materials admitted to the class by its definition. It therefore accepts unprovided for combinations of the basic subject matter of the class and structure provided for in other classes, unprovided for basic subject matter, and unprovided for subcombinations or elements found in the class. When placing a document or conducting a search in an older class, visually scan the main lines below "MISCELLANEOUS" to see if any provide for the subject matter in question. If no subclass is found, placement in "MISCELLANEOUS" is proper.

2. Inclusive Nature of Subclasses

A second important characteristic exhibited by the classification schedules is the inclusive nature of subclasses. This means that a subclass is proper for any claimed disclosurethat *at least* recites the subject matter provided for in the subclass.

Thus, in addition to providing a home for claims exclusively directed to the provided for subject matter, a subclass also accepts all combinations employing the provided for subject matter as a subcombination thereof, provided the combinations are otherwise proper for the class and do not find a home higher in the schedule. A subclass also provides for multiples of the concept unless a subclass is provided higher in the schedule for the multiples.

Given the concepts of hierarchy and the inclusive nature of subclasses, the modern classification schedules can be viewed as a series of sieves or strainers located one above another (see **Illustration A** on the next page). Those sieves that are located higher in the array have larger diameter apertures, so they strain out only the largest particles — that is, the largest organization of claimed elements. Moving down through the series, the aperture size decreases, consequently trapping smaller sized

organizations. This process continues all the way down the series to the bottom, i.e., the "MISCELLANEOUS" subclass, which traps whatever was not caught above.

If material is dropped into the top of the sieve array, it passes through the array until an aperture is reached that blocks further passage of the material. So it is with a modern classification schedule. When placing or retrieving (i.e., searching) a concept using a schedule, start with the first subclass in the class and proceed to move down through the "First Line" subclasses until one is found that will accept any claimed subject matter. This subclass exhausts the claimed subject matter and all concepts

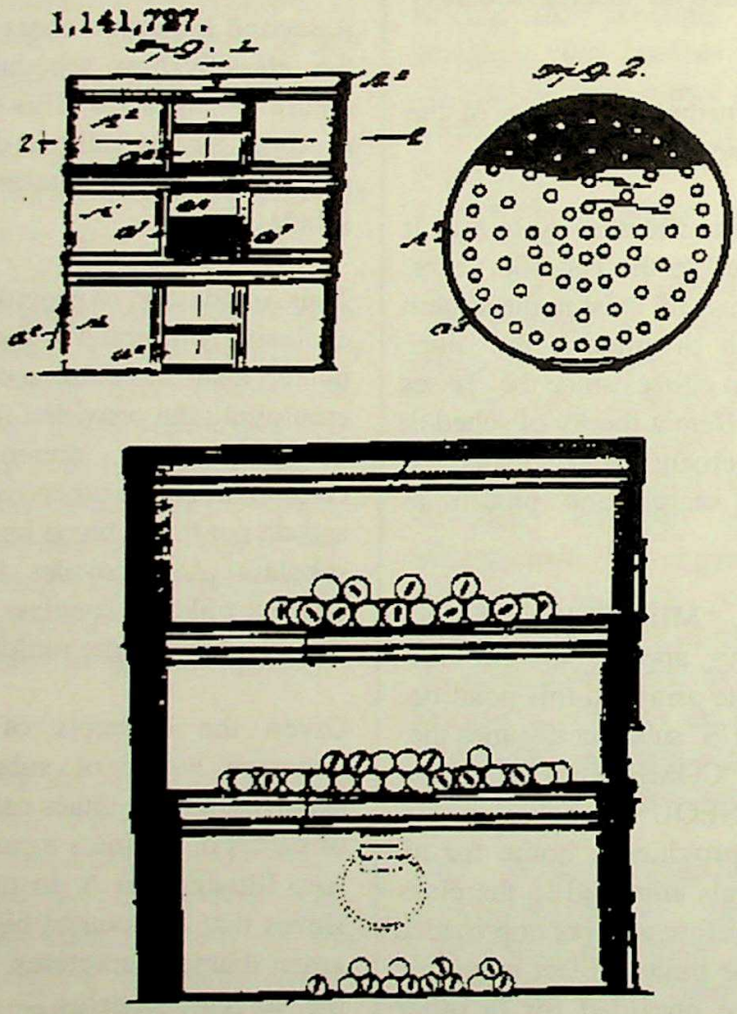

Illustration A

employing this subject matter. No lower "First Line" subclasses should have to be looked at in the schedule for this subject matter.

Since subclasses are inclusive, once an appropriate subclass is selected, it may be necessary to consider subclasses located higher in the schedule than the one selected. To illustrate, refer to the junk yard schedule given as an example in the Section above. Suppose, sorting through a pile of junk, a bar is discovered and a decision must be made about which bin to store the bar in. Consulting the schedule, starting at the top and scanning down, it is noted that subclass 1 provides for bars, but the bars must be combined with other elements, i.e., links and balls. Unless at least all three are present, classification in bin 1 is not proper.

If there is only a bar itself, then subclass 1 is not the proper placement for the bar. Subclasses 2 and 3 also provide for a bar. As noted above, the bar is combined with some other feature, i.e., a link in one case and a ball in the other. The first subclass that accepts a bar by itself is subclass 6. Accordingly, you would assign the bar to bin 6.

Now, suppose after a few months, someone comes in looking for a novel bar. It is known from previous experience that bars, per se, are in bin 6 and that in the classification system the subclasses or bins are exhaustive of their subject matter. Consequently, if the junk has been properly sorted, there is no need to look in any bin number that appears lower in the schedule than bin 6.

What about higher subclasses? Well, subclasses 1, 2, and 3 all include bars as part of their organization. To ensure that all bars have been seen, look into those bins also.

Finally, once a subclass is selected, all of its indents (if there are any) must be investigated to be sure that one of them does not provide more fully for the subject matter under investigation. The processes to be used are discussed below under the heading of "General Methodology." Also, it is imperative to read the subclass definition and any notesattached to it to be sure that no exception is made to the general rule of the inclusive nature of subclasses. Such exceptions do occur and care must be taken to avoid wasting time and effort.

3. Additional Types of Art Collections

a. Digest

A digest is a collection of cross-references created by an examiner; it is based on a concept that relates to a class but not to any particular subclass of that class. No ORs may be placed in digests. Digests are listed in numerical sequence at the end of the class schedule. Digests are not defined and are not available in the Public Search Room file.

b. Cross-Reference Art Collection

Cross-reference art collections differ from digests in that the material involved in the cross-reference art collection is defined to some degree and the patents are available in the Public Search Room. Some of these art collections include indentation levels. Placementin these

areas is intended to follow official patent placement procedures. Cross-reference art collections are usually listed in numerical sequence at the end of the class. In most classes, subclass numbers 900 - 999 are reserved for cross-reference art collections. Some cross-reference art collections may only be searched electronically (via APS). Other cross-reference art collections are based on the European Classification (ECLA) system, which is an expansion of the International Patent Classification (IPC) system.

c. Alpha Subclasses

Over the years, Patent Examiners have created alpha subclasses (previously called "unofficial" subclasses) to facilitate searches within the arts under their jurisdiction. In this process, a grouping of patents is selected from an existing numeric subclass and then collected in a new indented subclass with an alpha designation following the numeric designation. Since the original subclass no longer has all the patents officially classified therein, it is given the alpha designation "R" (indicating residual). Note that the numeric subclass located in the Public Search Room equates to the residual subclass plus any alpha subclasses indented under it. There are no definitions for alpha subclasses, nor is it contemplated to define these subclasses beyond the context of the titles and the definitions of the subclasses from which they were formed (and which are now "R" subclasses). The indented alpha subclasses are positioned in their proper hierarchical location in the schedule (i.e., immediately above the next subclass having an indent level less than or equal to the "R" subclass). These art collections are offered only to the extent they may be helpful as a search assist and should not necessarily be considered to be a completed collection of the art represented by the title.

4. General Methodology

(a) To reiterate, once the proper class is identified, it is necessary to select the proper subclass by scanning down the schedule of the class from the first appearing subclass toward the last. Only First Line subclasses (all fully capitalized titles) are considered on the initial scan. Each First Line subclass is evaluated (title checked against the definition, if necessary) until a First Line subclass is reached that provides for that *claimed* disclosure. When a First Line subclass cannot be selected using the *claimed* disclosure, the claim is classified in the "MISCELLANEOUS" subclass — even if a subclass can be selected using the total or unclaimed disclosure.

(b) *Classifying by claimed invention.* If such a First Line subclass has coordinate subclasses indented under it, these indented (Second Line) subclasses must in turn be scanned and evaluated individually to determine the first or highest subclass, if any, which provides more specifically for the *claimed* disclosure. See "Placement Within Alpha Arrays," below.

(c) If such an indented, Second Line subclass itself has coordinate indented subclasses, repeat the above process until the ultimate

indented subclass is reached that provides for the *claimed* disclosure.

(d) In the event that a claim is classifiable in more than one subclass in a class, the highest appearing subclass in the schedule that provides for the subject matter of any claim controls the Original classification of the claim.

5. Combination-Subcombination Rule

The following fragment of a schedule is used to illustrate a typical combination-subcombination relationship among subclasses.

253 ROLLING MEANS TO FORM SHEET OR STRIP
255 . With corrugating means
254 . With treating means
256 . Roll coacting with planar platen
257 . . Reciprocating platen

Here, the first line or major subclass (253) is a subcombination of subclasses indented thereunder. That is, subclasses 255 through 257 are greater combinations than are provided for by the parent subclass 253. But subclass 253 is also inclusive of its own subject matter in combination with other subject matter not provided for in subclasses 255-257.

A patent that is otherwise proper for subclass 253, by the procedures relating to *claimed* disclosure set out above in V, B, 4 (a-c) above, would in fact be placed in one of the indented subclasses 254-257 if the *total* disclosure included limitations of the indented subclasses. For example, a patent *claiming* a roll mill for strip forming and also *disclosing* means to corrugate said strip would be placed in subclass 255.

When further disclosure meets the term of an indented subclass such as 256 and also the still further indented subclass 257, the patent is placed in the appropriate ultimate indented subclass.

In addition, when further disclosure meets the terms of two or more indented subclasses that are coordinate with each other (as 255 and 256), the patent is placed in the first of said coordinate subclasses.

A patent having a claim to subject matter of subclass 253 and a disclosure for subclass 256, but also including a claim to a combination not provided for under subclass 253, is placed in subclass 256 regardless of the presence of the claim to the unprovided for combination. Therefore, a combination not provided for or subcombinations encompassed by the subclass 253 title and the definition must be searched in the parent subclass (253) and *all* indented subclasses under the parent (255-257). However, a search to a combination provided for by an indented subclass is limited to that subclass, and the preceding coordinate subclasses. As a practical matter, most Examiners and Classifiers have adopted the practice of placing a discretionary cross-reference in the parent (or subcombination) subclass when the patent contains a claim to an unprovided for combination, particularly where the number of indented (or combination) subclasses is excessively large.

6. Genus-Species Rule

The genus-species rule assumes that each species subclass is mutually exclusive of all other species encompassed by their generic subclass. Therefore, in many class schedules exhibiting a genus-species relationship, a variant to the above combination-subcombination rule is followed.

In a genus-species subclass array when plural species are indented under the generic subclass, placement is on the basis of total disclosure where only generic claims appear in a patent having disclosed species. A patent having genus claims only, but disclosing only species provided for by indents, is placed in the first appearing disclosed species subclass.

A patent having genus claims only and a disclosure to an unprovided for species is placed in the generic subclass; the generic subclass is the first appearing subclass that can take the unprovided for species.

For example, in the following subclass array:

1 Generic subclass (SPRING, e.g., Torsion, etc.)
2 . Subclass species A (Coil)
3 . Subclass species B (Leaf)

(a) If a generic claim only is present with disclosure of species A and B, place the patent as an OR in subclass 2 (and XR it to subclass 3).

(b) If a generic claim only is present with disclosures of species A and C (Torsion spring), place the patent as an OR in the generic subclass 1 (and XR it to subclass 2).

Stated generally, where, in addition to the generic claim, there is a claim to a provided for species, the patent is placed as an OR in that species subclass unless there is also a claim to an unprovided for species. In this latter case the patent is placed in the generic subclass.

For example, in the subclass array above:

(c) If a generic claim as well as a claim to species A and a disclosure to species C is present, place the patent as an OR in subclass 2 (and XR it to generic subclass 1).

(d) If a claim to species C is present as well as a claim to species A, place the patent as an OR in generic subclass 1 (and XR it to subclass 2).

In all of the above instances, place XRs in the appropriate subclasses. Thus, for a generic search to be complete, it must include the genus subclass and all indented species; a complete search for a provided for species need be made in only that species subclass; and a complete search of an unprovided for species need be made only in the generic subclass. You must be aware, however, of the presence of species that are not mutually exclusive. In the example used above, assume the presence of a third indented species subclass entitled "Plastic" and located above subclasses 2 and 3. Since any of the other species (i.e., torsion, coil, or leaf) could also be formed from a plastic material, none are

mutually exclusive with respect to the "Plastic" species. Therefore, a search for either the torsion coil or leaf spring should include the subclass entitled "Plastic." One final note: if the "Plastic" spring subclass were located at the bottom of the array, a search for a coil or a leaf spring would be confined to subclasses 2 and 3, respectively. This is due to subclass schedule hierarchy, and the exhaustive nature of subclasses, which was explained in this Section, above.

7. Placement of Markush Type Claims

In chemical compound and composition cases, when there is a generic claim classifiable in a number of different classifications, the OR is placed as described above— on the basis of the claimed species, or on the basis of the disclosed species if no species claims have been presented. In such cases, however, *all* classifications encompassed by the generic claim are mandatory.

In some chemical applications or patents, as sanctioned by Ex parte Markush, 1925 C.D. 126, a "genus" claim may be set forth as a group consisting of certain specified materials, when there is available no commonly accepted generic expression commensurate in scope with the materials recited (see MPEP 706.03(y)). An application or a patent may thus have a Markush "genus" claim with or without other claims to the specified materials, per se, and such specified materials being "species" of the Markush "genus." The same principles set forth above, with respect to genus-species array, govern the placement of applications or patents with Markush type claims. For example, given the following subclass array:

1 Generic subclass (organic compound)
2 . Species subclass (A) - ester
3 . Species subclass (B) – alcohol

(a) When a Markush group is disclosed, but only claimed as "species A (ester)" and "species B (alcohol)," place the document as an "Original" in subclass 2 and XR it to species B in subclass 3.

(b) When a Markush group is claimed as "consisting of A (ester), B (alcohol), and C (ether)," place the original in generic subclass 1 and XR it to species subclasses 2 and 3. The individual members of the Markush group are treated independently and the member C is provided for only in the generic subclass 1.

(c) When a Markush group is claimed as "consisting of A (ester), B (alcohol), and C (ether)," and there is also a claim to A (ester), per se, the original classification is to species subclass 2 with an XR to generic subclass 1 and to species subclass 3. That is, a patent having a claim to a Markush group is placed as an original in the genus subclass only when individual species are not claimed. The classification of the claimed species controls placement of the original

8. Mixed Array (Genus-Species and Combination-Subcombination)

A subclass schedule that includes both

combination subclasses and species subclasses indented under a common genus-subcombination subclass is categorized as a mixed array (see the list below).

1 SPRING (subcombination of a mechanism)
2 . Coil (species A of spring)
3 . Leaf (species B of spring)
4 . With Indicator (combination)
5 . With Lubricating Means (combination)

The following rules of placement have been used for mixed arrays:

(a) When a combination or subcombination is claimed which includes a coil spring (A), place the OR in subclass 2. No XR is needed since by schedule superiority all subject matter, including A, should be in subclass 2.

(b) When one claim includes a coil spring, plus an indicating means and a second claim includes a torsion spring (an unprovided for species) plus an indicating means, place the OR in subclass 2 with an XR to subclass 4. All coil springs and combinations claiming a coil spring are in subclass 2 and all combinations, including an indicating means, not provided for in the preceding subclasses, are in subclass 4.

(c) When one claim is to a coil spring plus an indicating means and a second claim is to a torsion spring, per se, place the OR in the generic subclass 1, the subclass accepting an unprovided for species, with an XR to subclass 2.

(d) When one claim is to a coil spring plus an indicating means and a second claim is to a torsion spring plus an unprovided for element Z, place the OR in subclass 1 with an XR to subclass 2 — as in (c) above.

9. Placement Within Alpha Arrays

The alpha subclasses provide for original and mandatory classifications. In the past, indented alpha subclasses were located directly under the subclass from which they were taken (i.e., directly under the residual or "R" subclass). This often caused confusion in determining a proper search field and in properly classifying a document. To help avoid this confusion, all indented alpha subclasses were relocated to their proper position in the schedule hierarchy(i.e., immediately above the next subclass having an indent level less than or equal to the "R" subclass from which they were taken). Patent placement in indented alpha subclasses now follows all normal rules of placement for subclasses.

In the sample alpha array below, indented alpha subclass 273N was created from subclass 273R. If, after considering each two dot indented subclass under subclass 273R (i.e., subclasses 274, 276, 277, 278, 279, 281R, and 284.1), a proper classification has still not been found, then alpha subclass 273N should be considered.

273R . Bituminous material or tarry residue containing
274 . . With sulfurizing or sulfonating agent
275 . . . With filler, dye or pigment
276 . . Rock asphalt
277 . . Bituminous emulsion
278 . . With solvent or dispersing medium
279 . . With flux
280 . . . With filler, dye or pigment
281R . . With filler, dye or pigment
282 . . . Fibrous containing
283 . . . Water containing
281N . . . Nitrogen containing
284.1 . . Phosphorus containing
273N . . Nitrogen containing
285 . Hydrocarbon containing

The user must be aware, however, that many old indented alpha subclasses may contain patents that were not consistently placed according to the rules of superiority. Also, since no definitions exist for any of the indented alpha subclasses, the user may have to look at the patents in each indented alpha subclass as well as the parent residual ("R") subclass to determine what type of subject matter is classified there. In the example above, even though subclass 273N might seem to be the proper classification, consideration of subclass 273R would still be proper. Subclass 273N would not have a definition, which might result in subclass 273R containing patents that might be relevant to the user's needs.

Proper patent placement into alpha subclasses is even more difficult when a series of alpha subclasses is listed sequentially. Again, since there are no definitions and since it is not known whether official rules of patent placement were followed in the past, a search in these areas could involve searching all of the alpha subclasses as well as the residual R subclass.

10. Nonconformity in Practice

It is necessary to be on the alert for past diversity of practice respecting placement within a class based on disclosure. Thus, vary your search techniques to compensate for such diversity. Nonconformityhas nearly always been of the following type:

In some cases, the combination-subcombination practice of carrying placement to an indented combination subclass has been extended unofficially to a genus-species subclass array. In such an instance, an unprovided for species, even when claimed, has been assigned to a subclass providing for another species which has also been disclosed. This has often been done with no cross-reference back to the generic parent subclass. When such a condition is known or detected, an unprovided for species must be searched in the parent generic subclass as well as all species subclasses indented thereunder.

VI. ORIGINALS VS. CROSS-REFERENCES

A. Mandatory Classifications

By determining the proper classification designation of each claim in a patent separately, and then assigning each separate classification designation to the patent, you can be reasonably certain that the claimed subject matter contained in the patent is retrievable. Each such classification is a mandatory classification. The Original classification (OR) is selected from among the mandatory classifications as being the highest in the schedule (superiority) of the class containing the controlling claim (see Section IV, A, above). The remaining mandatory classifications are designated as cross-references (XR) and the patent documents are so labeled.

B. Discretionary Classifications

Also designated as cross-references are any number of additional classifications that are deemed appropriate by the classifier or examiner, within the guidelines set forth below. These cross-references may provide for disclosure not encompassed by the claims, or for claimed subject matter that may be useful in classifications other than the mandatory classifications detemined by the placement procedures in Section V. The question of what unclaimed subject matter should be cross-referenced, and where, must be left to the judgment of the classifier or the examiner familiar with the art. Since there is a presumption that unclaimed subject matter is not new, it may be of little value. However, this is not always true, and much of this subject matter should be cross-referenced to make it available to a searcher. There are no exact rules. When, in the judgment of the classifier or examiner, the subject matter is useful and is disclosed in sufficient detail and clarity to be used as a reference, it should be cross-referenced.

1. Cross-References to Any Part of System

Unfamiliar subject matter should not be ignored. If a specific composition, electrical circuit, joint support, etc., is disclosed, it should not be assumed that it is conventional or not useful merely because it is not claimed. A classifier or examiner having experience in such unfamiliar art should be consulted to determine if a discretionary cross-reference would be useful.

2. Cross-Referenced Subject Matter Should Fit Subclass Definition

Subject matter cross-referenced to a subclass should fit the definition of the subclass. However, since the ultimate objective is to aid the searcher, a large amount of discretion may be used.

3. Techniques Used to Limit Cross-Referencing

In creating the USPC system, several techniques have been used to limit the need for discretionary cross-referencing. These consist of (1) proper positioning of subclasses in a class schedule and (2) search notes

a. Cross-Referencing Between Classes

A search note in the class definition of each of related classes generally precludes the need for discretionary cross-referencing. However, as in all discretionary cross-referencing, there may be a time when it is desirable to cross reference even if there is cross noting. For example, if a claim is classified in a combination class, it may be desirable to cross reference it to the subcombination class even if the locations are cross noted. A patent classified in a class providing for a subcombination (e.g., a machine tool chuck) should not necessarily be cross-referenced to a combination class (e.g., machine tool) solely on the basis of the subcombination.

b. Cross-Referencing Between Subclasses

The following general considerations apply to the placement of discretionary cross-references:

- When two subclasses (either in the same or separate classes) contain subject matter related in structure or mode of operation but which are separated on different functional bases, the provision of a search note in each subclass referring to the other subclass generally precludes cross-referencing from either subclass to the other.

- Two coordinate subclasses may have a combination-subcombination relationship with the subcombination subclass title consisting of the identical terminology of a portion of the combination subclass title or a subclass indented thereunder. If a search note is provided in the subcombination subclass indicating that the combination subclass or the subclass indented thereunder must be searched when conducting a search for the subcombination, then no cross-references are made from the combination subclass, or subclass indented thereunder, to the subcombination. However, a disclosure of a combination in a patent placed in the subcombination subclass may be cross-referenced if it is believed to be useful.

- When two coordinate subclasses have a genus-species relationship (the species subclass appearing first in the schedule), generally no cross-reference of such species is made to the genus subclass.

- When there are two subclasses, the first of which contains a great number of patents having disclosures directed to subject matter which could be cross-referenced to the second subclass but which fact is not evident from the titles of the subclasses, a search note is generally provided in the definition of the second subclass indicating that the first subclass must be searched and no patents are cross-referenced from the first subclass to the second subclass.

- Generally, no cross-reference is made within a class when the relative schedule position of the subclasses involved indicates that a search for the disclosure would include both subclasses.

In each of the above situations, it is quite common to find one or two cross-references, irrespective of the presence of a search note. This has frequently been done by classifiers to alert a searcher who may have overlooked the search note to a pertinent field of search.

c. Cross-Referencing Between a Parent Subclass and Its Indents

The two most frequent types of relationship between a parent subclass and subclasses indented under it are (a) combination-subcombination and (b) genus-species.

(1) In a subclass array including a parent subclass and indented subclasses of the type involving the combination-subcombination relationship— that is, where the indented subclass is directed to subject matter of the parent subclass combined with an additional feature or with a perfecting feature— a claim to the combination will be placed, as original, in the indented subclass directed to the first claimed feature. If the claim also recites an unprovided for additional feature or perfecting feature, the claim may, by discretion, be cross-referenced in the parent subclass.

(2) In a subclass array including a parent subclass and indented subclasses of the type involving the genus-species relationship — i.e., where the parent subclass is directed to a genus and an indented subclass is directed to a species— a claim to the species provided for in the indent and to an un-provided for species is classified originally in the parent subclass and cross-referenced in the indented subclass.

d. Search Notes in a Subclass Do Not Preclude Cross-Referencing in Its Indents

A note in a first subclass may indicate that a second subclass should be searched in connection with a search for the subject matter of the first subclass. This does not preclude cross-referencing of a patent from the second subclass to a subclass indented under the first subclass and directed to a *specific variant* thereof.

C. Original Designation

Only those patent documents labeled as "original" (OR) are accorded evidential value to construe titles, definitions, and notes This is because discretionary cross-references often reflect a great deal of subjective judgment on the part of a examiner or classifier, and there is no distinction made between mandatory and discretionary cross-references in the labeling of patent documents. Thus, for the purpose of (a) resolving differences as to placement of a patent application or a patent or (b) demonstrating

separate classifications or divergent fields of search in an examiner's requirement for restriction, only patents placed as ORs may be cited. *There is no difference at all, with respect to reference value, between an OR and XR patent.*

VII. Classification of Design Patents

A. Purpose

The Design classification schedule of the USPC system provides a structured organization for the body of U.S. Design patents. Since the claim of a Design Patent is directed to "an ornamental design" for "an article of manufacture" [35 USC 171], the Design patent schedule promotes efficient access to industrial designs that have been granted patent rights.

B. Theory

Classification of design patents is based on the concept of *function* or *intended use* of the industrial design disclosed and claimed in the Design patent. Industrial designs that have the same function are generally collected in the same Design class, even though individual designs may be used in different environments.

For example, patented designs for seating are classified in class D6, Furnishings,even though these designs may be used in the home, workplace, vehicles, etc. Industrial designs of the same function are further classified by specific functional feature, distinctive ornamental appearance, or form.

C. Design Patent Classes

U.S. Design patents are classified into 33 classes of subject matter:

U.S. DESIGN CLASSES

D1	Edible Products
D2	Apparel and Haberdashery
D3	Travel Goods, Personal Belongings, and Storage or Carrying Articles
D4	Brushware
D5	Textile or Paper Yard Goods; Sheet Material
D6	Furnishings
D7	Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified
D8	Tools and Hardware
D9	Packages and Containers for Goods
D10	Measuring, Testing or Signaling Instruments
D11	Jewelry, Symbolic Insignia, and Ornaments
D12	Transportation
D13	Equipment for Production, Distribution, or Transformation of Energy
D14	Recording, Communication, or Information Retrieval Equipment
D15	Machines Not Elsewhere Specified
D16	Photography and Optical Equipment
D17	Musical Instruments
D18	Printing and Office Machinery
D19	Office Supplies; Artists' and Teachers' Materials
D20	Sales and Advertising Equipment
D21	Games, Toys and Sports Goods
D22	Arms, Pyrotechnics, Hunting and Fishing Equipment
D23	Environmental Heating and Cooling, Fluid Handling and Sanitary Equipment
D24	Medical and Laboratory Equipment
D25	Building Units and Construction Elements
D26	Lighting
D27	Tobacco and Smokers' Supplies

D28 Cosmetic Products and Toilet Articles
D29 Equipment for Safety, Protection and Rescue
D30 Animal Husbandry
D32 Washing, Cleaning or Drying Machines
D34 Material or Article Handling Equipment
D99 Miscellaneous

1. Subclass

Each Design class is organized into subclasses to permit efficient searching for specific types of industrial designs.

A subclass is a collection of design patents found in a Design Class, which pertain to a particular function, a specific functional feature, or distinctive ornamental appearance or form.

For example, the subject matter in class D6, Furnishings, is classified by function into broad subclasses of similar types of furnishings—seating, work surfaces, storage, furniture parts and elements, etc. Because there are so many patented designs for the same general types of furnishings, this subject matter is further classified into subordinate or "indented" subclasses to promote efficient access to specific types of industrial designs.

As further illustration, there are too many Design patents for seating in Class D6 for efficient searching in a single subclass. Accordingly, an array of indented subclasses of various types of seating has been developed. These subclasses are as follows:

CLASS D6 FURNISHINGS

334 . Seating Unit (7)*
335 . . Combined or convertible (8)
336 . . .With work surface or storage unit (9)
337 . . . . Plural facing seats
338 . . . . Work surface positioned at the front of seat
339 . . . . . High chair for juvenile (10)
340 . . . . . Straddle type
341 . . . . . Asymmetrical attachment, e.g., offset art, etc.
342 . . . . Seat attached at front (11)
343 . . . With apparel support, i.e., "Valet" (12)
344 . . Swinging or rocking
345 . . . Simulative (13)
346 . . . Plural facing seats
347 . . . Suspended
348 . . . Curved runner contacts floor
349 . . Hassock, ottoman, stool or bench, i.e. without armrest and backrest (14)
350 . . . Stepped (15)
354 . . Straddle type, e.g. saddle, etc.
355 . . Backless
356 . . Vehicle type
357 . . Oppositely facing plural seats
358 . . Simulative (16)

Where a subordinate subclass contains a large number of industrial designs, this subject matter may be further classified into additional subordinate subclasses. For example, the classification of *Swinging or rocking* type seating (D6-344) has been expanded into an array of subordinate subclasses according to functional type and by ornamental appearance or form in subclasses D6-345 through D6-348.

A search of the broad or general subclass and its indented subclasses is designed to be

* The numbers in parentheses refer to Search Notes found at the end of the Design schedule. For a detailed explanation, see Section F2, *Search Notes*, below.

comprehensive and should include all pertinent designs for the subject matter specified in the subclass title.

Unique to Design patent subclass titles is the term "simulative." This term is used to refer to Design patents that look like or *simulate* the appearance of another article either by the use of applied ornamentation or form.

For example, Class D1, Edible Products, contains an array of subclasses under the heading of *Simulative* (see subclasses 107 - 115 below). These subclasses contain patented designs for edible food products that simulate the appearance of other articles. D1-113 contains edible food products that simulate vehicles or parts of vehicles, such as a "car" or a "vehicle wheel". D1-107 contains patented designs for edible products that look like animals. Indented under this subclass is D1-108, which contains designs for edible food products that simulate the human body. Indented under D1-108 is D1-109 which contains patented designs for edible products which simulate a "[Human] Head or other appendage."

D1 EDIBLE PRODUCTS

106	SIMULATIVE
107	. Animate
108	. . Humanoid
109	. . . Head or other appendage
110	. . Quadruped
111	. . Marine life
112	. . Heart shaped
113	. Vehicle or component thereof
114	. Alpha or numeric
115	. Plant life

2. Relationship to Utility Classes

There is *no relationship* between the titles and numerical designations used in Design schedules and those in Utility classes. A directory of Utility and Design titles and subject matter can be found in the *Index to the US Patent Classification System*.

D. Definitions

At present, there are no formal definitions for the terms used in the Design schedules. The meanings of the terms used in the Design class and subclass titles are based on the common dictionary definitions. However, formal definitions for each design class and subclass are being developed and will be published at a future date. When formal definitions are published, exclusion and search notes will no longer be necessary for Design Classes (see Sections F1 and F2 below.)

E. Hierarchy

The principle of hierarchyused to classify utility patents, as outlined in Section V of this Handbook, also applies to the classification of Design patents. Design patents are placed as original documents (ORs) in the first Design class of pertinent subject matter and subsequently in the first pertinent subclass or indented subclass of the Design class. Design patents that have been placed in one class as an OR will appear in other Design or Utility subclasses only as supplemental or cross-reference (XR) documents.

For example, Design patents for airplanes are properly classified as ORs in Class D12, Transportation. However, if a particular airplane design is considered to be a useful reference that should be included with the collection of industrial designs for toy airplanes, an XRmay be classified in one or more subclasses for toy airplanes in Class D21, Games, Toys, Exercise Equipment and Sports Goods. Conversely, if a Design patent for a toy airplane is believed to be pertinent or similar in appearance to designs for a genuine airplane, an XR may be classified in Class D12.

F. Unique Features of Design Patent Classification

1. Exclusion Notes

Exclusion Notes in Design classification are used to clarify the subject matter in each Design class. Exclusion Notes are found at the beginning of each Design class and must be considered when planning a search for a particular industrial design. Review of the Exclusion Notes will ensure that certain subject matter has not been classified in another Design class.

For example, in Class D6, Furnishings, the Exclusion Notes state that ornamental designs for wheelchairs are excluded and are classified in Class D12, Transportation. Another example: Class D10, Measuring, Testing or Signaling

Instruments provides for clocks. However, the D10 Exclusion Notes indicate that Design patents for clocks combined with a radio or television are classified in Class D14, Recording, Communication or Information Retrieval Equipment. The Exclusion Notes further indicate that Design patents "for clocks combined with a sign or display equipment" are classified in D20, Sales and Advertising Equipment.

Again, Exclusion Notes will become unnecessary when formal definitions are published for Design Classes and Subclasses.

2. Search Notes

Design Classes also use Search Notes placed after some subclass titles and/or at the end of each Design class schedule. Search Notes are used to explain the subject matter found in a specific subclass.

For example, the subclass title of Class D6, subclass 344 is "Seating unit." A Search Note (7) has been added in parentheses immediately after the subclass title. This Note (7), found at the end of the D6 schedule, states "for leg, see subclass 495+," meaning that although the design patents in D6-334 and its indented subclasses may include ornamental designs that include disclosures of seating type legs, D6-495 and its indented subclasses contain additional designs for furniture legs.

In some cases, a search note immediately following the subclass title further explains the subject matter in the subclass. For example:

349 . . Hassock, ottoman, stool or bench, i.e. without armrest and backrest (14)

The note "i.e., without armrest and backrest" further clarifies the nature of the subject matter classified in this particular subclass. Note (14) of this same subclass title is found at the end of the D6 schedule and explains: "For bench type seating with an armrest, see subclass 355. For straddle type seat, see subclass 354. "

3. Cross-Reference Art Collections and Digests

Cross-Reference Art Collections are collections of Design and Utility patents for subject matter that is not specifically provided for in a particular subclass. This subject matter is generally very diverse, broad in scope, and includes industrial designs that have multiple functions. Cross-Reference Art Collections provide an overview of certain subject matter and should be included in a comprehensive search.

For example, at the end of the schedule for Class D3, Travel Goods, Personal Belongings, and Storage or Carrying Articles, Cross-Reference Art Collections are provided for Briefcase, Tool Box or Tackle Box and Cosmetic Case. There are no subclasses for this subject matter in the Design schedule since the scope of the subject matter is too diverse to be classified in a single subclass or array of subclasses. A review of these Cross-Reference Art Collections provides a perspective of the specified type of subject matter and can be used to find Design patents pertinent to a particular search. Each document in the collection has an

OR classification in the USPCS, which can be used to locate additional subject matter with a similar specific function or ornamental appearance.

Design Digests are informal collections of Design patents, Utility patents, and non-patent literature. Digests have been compiled by patent examiners as collections of industrial designs to provide a "shortcut" to a comprehensive search of a specific art. For example, for the convenience of examiners searching tool handles, Class D8, Tools and Hardware, contains an array of Handle Digests with collections of different types of patented handles found throughout the Design and Utility patent schedules.

All patents in a Digest are classified as ORs in the appropriate Design and Utility classes but are not available as a unitary search in a specific subclass. As with Utility patents, no Design patent may issue as an OR in Cross-Reference Art Collections or Digests.

G. Placement Rules for Design Patents

Design patents are classified as ORs in the first Design class that contains subject matter most pertinent to the subject matter claimed. Within the Design Class the patent is classified in the first pertinent subclass or indented subclass that describes the specific function, intended use, or ornamental features of the design claimed. If an OR does not meet the criteria of any particular subclass title, the OR is placed in the most appropriate general or broad subclass of the particular Design class.

When a Design patent includes more than one embodiment of an industrial design, the patent is classified as an OR according to the first embodiment shown in the drawing disclosure. Additional classifications are placed for the additional embodiments as XRs in the appropriate Design Class and subclass.

If the subject matter of any Design patent is considered pertinent to an additional subclass or subclasses, XRs of the patent may be included at the discretion of the Design classifier.

If a Design patent claims a combined article, such as a clock radio, the patent is classified as an OR according to the Exclusion and Search Notes or in the first pertinent Design class and subclass that provides for the subject matter claimed. XRs of the patent may be placed as necessary. In Design patent practice, mandatory XRs are not required.

H. Locarno International Classification of Designs

U.S. Design patents issued after May 6, 1997, are assigned a Locarno International Classification for Industrial Designs in addition to the U.S. classification. Dual classification is provided to improve access to U.S. Design patents in foreign search files that are based on the Locarno International Classification system, which is administered by the World Intellectual Property Office (WIPO).

The structure of the Locarno International Classification System for Industrial Designs is substantially parallel to that of the U.S. system. The Locarno system classifies industrial designs

according to function in 34 classes, which contain substantially the same subject matter as their USPC counterparts. Accordingly, the subject matter found in U.S. class D1 or class D2, etc., will be substantially the same as that found in Locarno Class 01, Class 02, etc. The exception is Locarno Class 31-00, Machines and Appliances for Preparing Food or Drink not Elsewhere Specified. All of the material found in Locarno Class 31-00 is included in U.S. class D7, Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified.

The USPC system has many more Design subclasses than the Locarno system. For example, Class D21 has 540 subclasses. Locarno Class 21-00 has only 5 subclasses. The larger number of subclasses available in the USPC provides improved access to patented industrial designs through more detailed designation of subclasses for subject matter.

Locarno designations may be used to search U.S. Design patents with the Automated Patent Search (APS) system available at USPTO and some Patent and Trademark Depository Libraries.

I. Questions about Design Patent Classification

General questions about how to use the USPC for Design patents can be directed to the USPTO Information Line and Patent Assistance Center at 1-800/PTO-9199 or in the Washington, D.C., area at (703)308-4357. Further inquiry should be addressed to Charles A. Rademaker at (703)305-7988 or by e-mail to: Charles.Rademaker@USPTO.gov

ADDENDUM

Reclassification in Classes 518-585

Class 260, the class of organic chemistry, once contained the largest array of patent documents in the PTO. It was decided that this class needed to be reclassified because its concepts did not necessarily address new technology and several of its subclasses were too difficult to search because of their size.

Also, it was decided that a new format for reclassification should be adopted so that the results of reclassification projects could be used as soon as possible. In the past, a class was reclassified in its entirety; however, it is not practical to reclassify a large class like 260 in its entirety because it could take years before a newly created class and its subclasses could be published.

Consequently, the decision was made to segment Class 260 into a number of individual reclassification projects so that the results of these projects would be available for searches. Using this approach has resulted in the publication of several individual classes, within the range of Classes 518-585, to replace subclasses and concepts found in Class 260. Whenever subclasses are replaced in Class 260, the individual subclass areas are noted by a reference box in Class 260 to indicate the new search areas. Eventually, all of Class 260 will be reclassified and Class 260 will be abolished. Within the range of Classes 518-585, Classes 520-528 are considered the 520 series and Classes 532-570 are considered another series. Each of Classes 518-585 is considered an independent class under the Class 260 umbrella.

Within the newly established classes, the schedule hierarchyand placement superiority are indicated by the class number. For instance, Class 525 is superior to Class 528 and Class 544 is superior to Class 560. The Class numbers merely indicate superiority of subject matter within the Class 260 family. Each class in the 520 Series and in the 532-570 series has been noted by upper case characters followed by a one-dot indent level with a carryover on the top of the manual page indicating the appropriate series—i.e., 520, 532-570. The general rules of patent placement in Section V, B, 1, of this handbook apply to the 520 and 532-570 series.

Appendix A

STRUCTURE OF THE MODERN SCHEDULE

Over the years, the USPTO has used many schemes to provide a framework that is uniform for the entire classification system as well as to provide schemes that optimize a class's usefulness as a search aid.

The current philosophy on the organization of patent data was formulated in early 1964 and set forth in the publication "*Development and Use of Patent Classification Systems*" (DUPACS). This publication was issued in January 1966 and is now out of print; however, a number of copies still exist in each group in the Examining Corps.

DUPACS sets forth a model (shown below) that should be used in the creation of a new classification system; i.e., a class. However, this model is a theoretical standard and many deviations will be found in practice. The primary reason for these deviations is that all classes are built based upon a thorough review of the art to be contained in the new class. The structure of the class is dictated by the art itself. This review of the actual documents frequently causes modification of the theoretical model.

The specific arrangement of subclasses within a schedule will define that schedule's hierarchyas noted in the main portion of this handbook. The hierarchy will almost invariably arrange the subject matter with the most complicated and comprehensive material at the top of the schedule and the simpler material at a lower position in the schedule.

Further, all modern schedules exhibit exhaustive subclasses. This concept is discussed in depth in the main body of this handbook.

With these preliminary thoughts and reservations, a discussion about the preferred theoretical structure of the "Modern" class will now take place.

The "modern" class is often represented as an inverted right triangle

CLASS OF BASIC SUBJECT MATTER A

Complexity →

Position in Schedule ↑ ↓

CONDITION RESPONSIVE OR AUTOMATIC CONTROL

MEASURING AND TESTING

OTHER SPECIAL A SUBCLASSES

AB

Ap

CONVERTIBLE

COMBINED

PLURAL A ($A_1 + A_2$)

A_1 + X (subcombinations specialized to A_1)

A_n

X_1 (subcombinations specialized to the class)

X_2 (subcombinations of general utility)

MISCELLANEOUS

As you can see in the above scheme, the subject matter is arranged from the most complicated (the top of the triangle) to the simplest (the bottom of the triangle). A, AB, Ap, and X are the four characters of subject matter in the above scheme. "A" represents the basic subject matter of the class, e.g., in a class of pumps.

- "A" would be the types of pumps found in the class (e.g., jet pumps, reciprocating pumps, etc.);
- "AB" represents the basic subject matter combined with subject matter having a different proximate function, effect, or product; that is, the subject matter of another class (e.g., a pump combined with and driven by a vehicle);
- "Ap" represents the basic subject matter combined with a perfecting feature, i.e., some structure that enhances or improves the operation of basic subject matter device (e.g., an intercooler located between stages of a pump which improves the overall efficiency of the pump by carrying away unwanted heat generated during the pump's operation);
- "X" represents the subcombinations of the basic subject matter or elements peculiar to or associated with the basic subject matter, when such subcombinations or elements are not specifically provided for in some other class (e.g., pump casings, etc.).

In addition to subclasses providing for the above noted material, modern schedules frequently provide for the following additional concepts:

(a) Condition Response (Automatic Control)
(b) Measuring and Testing
(c) Special "A"
(d) Convertible
(e) Combined
(f) Plural "A"
(g) Miscellaneous

A brief description of each of the above types of subclasses is given below.

Condition Response (Automatic Control)

Condition response is a broad concept that embraces the variant, Automatic Control within its boundaries. Condition responsive subclasses are intended to provide a home for devices that include a means to sense a *randomly* occurring condition or change in condition that will effect a change in the operation of a device provided for in the class. This concept embraces devices as complicated as a milling machine with means to sense the position of a cutting head and acts to disable the machine if any misalignment is sensed. It also includes within its scope a device as simple as a pressure biased check valve, wherein the under surface of the valve seat senses fluid pressure which causes the valve to unseat when the pressure against the underside of the seat reaches a predetermined point.

"Automatic Control" is a more restrictive concept that includes means to sense a randomly occurring condition or change of conditions that operates on a *separate means* to effect control

of an apparatus, e.g., the milling machine mentioned above. This concept requires a sensor, e.g., a slipper or feeler located adjacent to the system, which senses a condition or change in condition, e.g., tool misalignment. Once this condition is sensed, the sensing means operates on another device, e.g., a switch or valve, which controls a different medium to regulate the operation of the controlled device. There has been a tendency in recent years to move away from the title "Automatic Control" and to substitute the title similar to "Control Means Responsive to Sensed Condition."

Another concept closely allied to Automatic Control is *Programmed or Cyclic Control*. These devices frequently include sensors; however, the device employing the sensors merely performs repetitive operations. There is a basic "law of the machine" and the sensors are actuated in sequence to control the operation of the device based on that law. In other words, the condition sensed is predictable rather than random.

Also embraced by this concept are those devices that employ stored intelligence (e.g., magnetic tape) to control the operation of the machine in a prescribed, repetitive fashion.

These subclasses are generally grouped in the same area of the schedule and this area is generally located relatively high in the schedule.

Measuring and Testing

Many classes provide for their basic subject matter combined with some type of measuring or testing device. This represents a special type of "AB" combined subclass, but is no different in character than any other "AB" type subclass. In fact, its only distinction is its frequent occurrence.

Combined subclasses drawn to a class's basic subject matter combined with heating or cooling means or lubricating means are also frequently found in many modern classes.

Special "A"

It frequently happens that special collections of unique basic subject matter are provided for very high in the class schedule. These collections are of special search value and could get lost if they were positioned lower in the schedule. This collection will also appear above the "Combined" subclass even though they are not very complicated and are not drawn to combinations or basic subject matter plus perfecting feature. An example of one such collection is drawn to getter type pumps in Class 417.

Convertible

This subclass provides for devices which, while they are the basic subject matter of one class, are intended to be changed into the basic subject matter of another class by a rearrangement of their parts. This concept also provides for the change of one type of device provided for in a given class into a different type of device also provided for in the same class by rearangement of the parts of the device.

Combined

As previously noted in this handbook, "Combined" represents a dividing point in the schedule. Unless a note to the contrary appears, the subclass is exhaustive of all combinations, i.e., "AB" type and "Ap" type subclasses not provided for higher in the schedule.

Generally, all subclasses appearing below "Combined" will be drawn to either the basic subject matter of the class or to the subcombination and elements peculiar to or associated with that subject matter.

Therefore, a "Combined" subclass, in practice, is a "Miscellaneous" subclass for combinations not provided for elsewhere.

Plural "A"

Another type of collection that frequently appears in a modern schedule is one drawn to systems employing multiple devices provided for in the class. The multiple devices may be of the same type or they may be different types, e.g., two diaphragm pumps connected in series or a diaphragm pump and a reciprocating piston type arranged in the same fashion.

This subclass is usually positioned immediately below the "Combined" subclass.

Miscellaneous

In many modern schedules, the last subclass contained in the schedule is "Miscellaneous"

This subclass is defined in extremely broad terms and is intended to be exhaustive of all subject matter admitted to the class but not provided for higher in the class. Each "Main Line" subclass is exhaustive for the material provided for in that main line; however, there will often be a residue of material that does not fit the existing "Main Lines." If a "Combined" subclass exists in the schedule, only unprovided for basic subject matter and unprovided for subcombinations and elements will be found in "Miscellaneous." It must be remembered that "Combined" is exhaustive of combinations of the basic subject matter and the subject matter of some other class.

In conclusion, the above model is a theoretical model, and many deviations will be found in practice, e.g., Classes 198 and 251 contain no "Combined" subclass even though they are modern classes. This omission was a conscious act of the Classifier involved and was dictated by the nature of the art embraced by the class.

One must always carefully review a schedule while using it to look for exceptions from this model.

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